

WARNER (L. F.)

*With Compliments of*

*THE AUTHOR.*

ON THE CONNECTION OF  
  
THE HEPATIC FUNCTIONS

WITH

UTERINE HYPERÆMIAS, FLUXIONS, CONGES-  
TIONS, AND INFLAMMATIONS.

WITH APPENDIX.

BY

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In writing this paper it will be my object to deal with its subject in a very practical rather than a theoretical manner.

I shall consider the liver in its relation to other parts of the system as well as in its relation to the pelvic organs, and shall endeavor to show that many of the diseases of these organs may be traced, either directly or indirectly, to the part which the liver has to do with them when organically or functionally diseased.

The great pendulum of medical thought has never stood still in regard to the true functions and pathology of the liver. At times it has been looked upon as of trifling importance, as having but little to do with the diseases incident to man, and has received but slight attention from the medical profession, while at other periods it has been held in the highest regard

<sup>1</sup> The above paper was written three years before it was communicated to the American Medical Association, and during this period it was read privately by several gentlemen, among them Dr. Marion Sims, and Professors Byford and Jenks. The fact is mentioned simply because articles by other authors have since appeared, which will be found strongly corroborative of the position that it maintains.

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and considered of very great influence. At all events, at nearly every period, quacks and charlatans have saddled it and ridden triumphantly to wealth and fame. I believe to-day it is the great balance-wheel upon whose healthy action depends the normal condition of many of the principal functions of the human economy.

That wonderful man of the second century, Galen, seems to have had a better knowledge of the true functions of the liver than most men of the present century, having at that early day promulgated many physiological facts which, after being thrown aside for the past two centuries, have been revived by modern physiological investigations; and also many new and important functions have been added to them.<sup>1</sup>

Thomas Bartolin, on the discovery of the lacteals and thoracic duct, wrote for the liver an epitaph, in which the end of its dominion was announced, and its function was declared to be henceforth limited to the secretion of bile. We find that the death of its other functions existed only in his ignorance and morbid imagination, and it is now clearly proven that the secretion of bile is one of the lesser if not the least of the functions of this organ.

The late Dr. Copland arranged the functional derangements of the liver under the three following heads: —

1. Diminished secretion of bile.
2. Increased secretion of bile.
3. Secretion of morbid or altered bile.

<sup>1</sup> See Appendix A.

In this he clearly implied that the secretion of bile was the *only* function which the liver possessed.

Dr. Murchison — whose admirable lectures upon the liver, delivered before the Royal College of Physicians in London, in 1874, might be read with advantage by every intelligent physician — shows that its functions are *manifold*, and that when it becomes disordered it may excite functional derangement in the different physiological systems of the body. He classes the functional derangements of the liver under the following heads: —

1. *Abnormal Nutrition.* — An abnormal deposition of fat. Opposite condition of emaciation.

2. *Abnormal Elimination.* — Retention of cholesterine, etc.

3. *Abnormal Disintegration.* — Imperfect disintegration of albuminous matter, or its non-conversion into a soluble product (urea), which can be readily excreted by the kidneys.

4. *Derangement of the Organs of Digestion.* — Deficient or abnormal appetite, flatulence, constipation, and sometimes diarrhoea.

5. *Derangement of the Nervous System.* — Such as pain in the limbs, hepatic neuralgia, headache, vertigo, convulsions, paralysis, depression of spirits, and irritability of temper.

6. *Derangement of the Organs of Circulation.* — Palpitations, irregularities and intermissions of the pulse, angina pectoris, etc.

7. *Derangement of the Organs of Respiration.* — Chronic bronchitis, spasmodic asthma, and chronic catarrh of the fauces.

8. *Derangement of the Urinary Organs.* — Deposits of lithic acid, lithates in the urine, renal calculi, diseases of the kidneys, cystitis.

9. *Abnormal Condition of the Skin.*

The large size of the liver and its extensive system of blood-vessels render it liable to congestion, thereby impeding portal circulation, throwing back the blood upon the pelvic organs, causing more or less congestions, hyperæmias, fluxions, and inflammations.<sup>1</sup> I will now proceed to enumerate some of these.

1. I have never yet seen a case of *hæmorrhoids* in either male or female but that there was either then existing, or had existed, functional derangement of the liver.

2. In many cases *metrorrhagia* may be directly traced to congestion of the liver. I presume there are but few physicians of experience who have not seen metrorrhagia yield at once to a proper appeal to that organ.

3. *Inflammation and hypertrophy of the uterus*, including *displacements* and in many cases also *menorrhagia*.

I would here say that where hypertrophy and displacement depend simply upon congestion, to restore the organ to its place, and to keep it there by proper appliances, will in most cases be all the treatment necessary; but where the hypertrophy and displacement depend upon long-continued inflammation, with interstitial deposit, semi-organized, to restore such displacement to its normal condition

<sup>1</sup> See Appendix B.

by artificial appliances, when it can be borne by the patient, will relieve her of many unpleasant feelings, but will not effect a cure. Here we are obliged to resort to a *general*<sup>1</sup> as well as local treatment, for I have *never* been able even to *approximate* a cure in cases of the latter class by local treatment alone; and were I compelled to choose between local and general treatment, and to depend upon one alone, I should choose the general treatment; this you will grant is much for professed gynæcologists to allow, for specialists have been called men of one idea.

4. I believe the origin of many *fibrous tumors* may be traced to the same cause, especially the intramural fibroids, for, inasmuch as the blood has imparted to it *in the liver* the principle upon which the metamorphosis of tissue depends, it follows that when this function is but imperfectly performed, and thus the disintegrated and effete matter is not sufficiently broken down to be eliminated, it will be retained in the circulation, and owing to the physical structure of the uterus, find its way into the muscular fibrous cells, or fibrous connective tissue and vessels, and thus form a nucleus from which fibroids may originate. Virchow says that fibroids have in every respect the same structure that the walls of the hypertrophied uterus have, and are homologous.

I will here give a few cases of fibrous tumors which have come under my observation within the last few years.

CASE I. In 1868, Mrs. P. consulted me for excessive menorrhagia at her menstrual period, which oc-

<sup>1</sup> See Appendix C.

curred every third week, losing much blood, using from twenty to thirty napkins, accompanied by dysmenorrhœa. Upon examination I found great hypertrophy of the os uteri, subinvolution, sound entering readily, cavity measuring from four to five inches. A tumor could be easily felt through the abdominal parietes, very much like the uterus at the seventh month of gestation. Upon close examination, I found a large fibroid, occupying the right antero-superior lateral wall. The patient complained of being exceedingly nervous, had coated tongue, was troubled with more or less indigestion with obstinate constipation. Treatment:—

Ammonia hydrochlorate . . . . .	3 iv. <sup>1</sup>
Tincture gentian comp.,	
Tincture cinchona . . . . .	āā 3 iv.

Dose from one to two teaspoonfuls three times a day. Pill. hepatic every other night, followed the next morning by one teaspoonful sulphate of magnesia. Two grains of quinine night and morning. Painting the abdomen every night over the region of the uterus with tincture of iodine, one part, comp. soap liniment, two parts.

The above treatment was continued for many months with the occasional omission of the hepatic pills. After a few months the menorrhagia gradually became less, until the menstrual function was nearly normal, attended by a decided shrinking away of the tumor. I then lost sight of the patient for nearly a year, when she called upon me to say she believed herself pregnant, as she had not had her courses for

<sup>1</sup> See Appendix D.

over five months. Upon examination I ascertained beyond a doubt that her suspicions were correct; foetal motions could be readily detected. Feeling that it might be a case presenting some difficulties and complications at the time of labor, I introduced her to one of our best accoucheurs, giving him a history of the case, and he was engaged to attend her. She reached her full time, gave birth to a healthy child, and had in every particular a normal delivery. The physician afterwards informed me that there was no more than the usual amount of flooding, and that the uterus contracted to the normal size, etc. She had a rapid recovery from confinement, the tumor having entirely disappeared.

CASE II. Mrs. W. consulted me for menorrhagia, presenting very much the same appearance as the case just mentioned. Nearly the same treatment was followed, with the exception of removing troublesome hæmorrhoids, and in the course of a year or two her tumor entirely disappeared. I would here add that at the time she consulted me she was over forty years of age, and soon after reached the climacteric.

CASE III. Mrs. W., age twenty-six, married four years, consulted me for sterility and menorrhagia. An examination showed three and one half to four inches cavity of uterus, with fibroid tumor readily felt above the pubes. She complained of dyspepsia, constipation, and nervousness. Nearly the same treatment was followed in this case as in the first, with the addition of tincture of iodine (forty grains to the ounce), frequently applied to the os and uterine cavity. Although she has never become pregnant, at the pres-

ent time there is no appearance of the tumor, and menstruation has been for the past two years normal in every particular, and she enjoys excellent health. [I have learned since writing the above that this lady also became pregnant two years and a half ago, and was delivered of a healthy child. I had the opportunity of examining her during last week, and find that there is no appearance of the tumor, and that she enjoys most excellent health.]

CASE IV. Mrs. M., age forty-six, consulted me for menorrhagia, etc., soiling from thirty to forty napkins; menstrual period occurring every three weeks. She is the mother of three children, the youngest ten years old. Discovered fibroid occupying more than half the right lateral wall, extending from the os to the fundus. Sound entered five inches. Nearly the same treatment followed as in the one preceding. At the present time menstruation does not exceed five or six napkins, and is regular as to time. There is not much change in the tumor, but it has not increased during the last year.

I would here say that I was first led to use the muriate of ammonia in uterine fibroids, by its recommendation by Dr. Washington Atlee of Pennsylvania. I have also used it, with decided benefit I think, in affections of the liver, believing with the Germans that it has in some way a specific influence upon the functions of that organ. As I have always used it in conjunction with other remedies universally acknowledged potent upon the liver, I cannot speak as positively as I could wish as to its therapeutic action.

5. Under the head of *constipation* I will give a tabulated statement, showing the condition of the bowels of one hundred and fifty consecutive cases, in which I have been consulted for uterine disease, giving the length of time they had been ailing : —

Years sick.	Costive.	Regular.	Diarrhoea.	Total.
1	7	16	1	24
2	9	8	1	18
3	10	5	—	15
4	15	2	1	18
5	15	3	—	18
6	11	1	—	12
7	3	—	—	3
8	4	1	—	5
9	5	—	—	5
10	10	—	—	10
11	3	—	—	3
12	3	—	1	4
13	2	—	—	2
14	4	—	—	4
15	2	—	—	2
16	1	—	—	1
17	—	1	—	1
18	1	—	—	1
19	1	—	—	1
<hr/>				
	106	37	4	147
No. of years not given	3	—	—	—
<hr/>				
	109	37	4	150

It will be readily seen from the above that the degree of constipation is in exact proportion to the length of time of the sickness. This leads me to the conclusion that there must be some direct connection between uterine disease and the functions of the liver, or *vice versa*. The dull and sallow appearance of the skin, presenting often a jaundiced hue,

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together with a constipated condition of the bowels, in persons who have been for a considerable length of time affected with uterine disease, confirms this conclusion. That constipation in nearly every case may be traced directly to functional disease of the liver, I fully believe, although many writers deny this, and attribute it to other causes. In my own practice, I have never been able to overcome constipation, without first resorting to remedies directed to the liver. I will mention one or two cases in illustration.

CASE I. — A number of years since I was called to a case of obstinate constipation which had existed for a long time in a patient of about twelve years, where defecation could be effected only by the greatest exertion and difficulty. The feces, when passed, were clay-colored, and nearly free from moisture, and when exposed to the air for a short time, would crumble like slaked lime. Placed upon treatment of pills composed of calomel, nux vomica, taraxacum, and quinine, with an occasional laxative. This was continued for several months, in which time the bowels assumed a healthy condition, and have continued so up to the present time, a lapse of seven years. The patient not only presented a sallow and dusky appearance of the skin, but, what was most remarkable in one so young, the hair had turned quite gray, which on return to health was arrested.

CASE II. — The patient was an infant five months old, troubled from its birth with obstinate constipation, clay-colored stools, which yielded to the following treatment :

R̄ Hyd. chlo. mitis . . . . .	gr. i.
Ext. hyoscyami pulv. . . . .	gr. iv.
Sacch. alb. pulv. . . . .	gr. xii.
Divid. in chart xii.	

After continuing this for a few weeks with short intervals, health was fully restored, and continues perfect to the present time, six years.

As it is not entirely foreign to the subject under consideration, I ask your indulgence for a few moments, while we consider the liver in its relation to other disturbances of the system, which may possibly throw some light upon certain conditions not easy to explain.<sup>1</sup> Did the principal uterine veins connect directly with the vena porta, and not empty as they do into the vena cava, it would not be so difficult to trace fully the *connection*<sup>2</sup> between the hepatic circulation and uterine hyperæmias, fluxions, and inflammations.

That these conditions do exist in consequence of hepatic congestion obstructing portal circulation, etc., there can be no doubt. In patients who have suffered from uterine disease for any length of time, we find functional derangement of the liver, leaving no doubt, as we have before said, of the intimate relation between the two organs; and, with our present knowledge, it is difficult to say which is affected first.

It is a well-known fact that most uterine patients are extremely nervous. By viewing the liver in its excretory functions, we may be enabled to approximate to an explanation of this mysterious nervous phenomenon.

<sup>1</sup> See Appendix D.

<sup>2</sup> See Appendix E.

That eminent physiologist, Austin Flint, Jr., has done much to explain the functions of this wonderful gland, and to establish beyond a doubt the fact that the effete or broken-down matter of the nervous system is eliminated by the liver in the form of cholesterine. From his investigations it may be justly inferred that a failure on the part of this organ to eliminate the products of the disassimilation of nervous tissue, thereby causing its retention, produces more or less disorganization and derangement of the nervous system. In his late work on the liver, he says, "If cholesterine be one of the products of the disassimilation of nervous tissue, its formation would be proportionate in activity to the nutrition of the nerves, and anything which interfered to any great extent with their nutrition would diminish the quantity of cholesterine produced. In the production of urea by the general system, which is an analogous process, muscular activity increases the quantity, and inaction diminishes it, on account of the effect upon nutrition. In cases of paralysis, we have a diminution of the nutritive forces in the parts affected, especially of the nervous system, which, after a time, becomes so disorganized, that, although the cause of the paralysis be removed, the nerves cannot resume their functions." In other words, cholesterine is formed in the nervous tissue, and is prevented from accumulating in the blood by its excretion by the liver. "This," he continues, "suggests an interesting series of inquiries, and this fact, fully substantiated, would be as important to the pathologist as to the physiologist."

He also gives three cases of hemiplegia, where, in the blood taken from the paralyzed side, not a single crystal of cholesterine was found, while about the normal quantity was found in the blood from the sound side. "These observations," he says, "taken in connection with his experiments on animals, point very strongly to the conclusion that cholesterine is a product of the nervous system only. That the venous blood coming from the extremities contains more cholesterine than the arterial blood, taken in connection with the fact that none of the tissues of the extremities contain cholesterine except the nerves, renders it more than probable that the nerves as well as the brain are the seat of the formation of this principle."

If the above statement be true, of which there can be scarcely a doubt, the great practical question is, What remedies, if any, are best calculated to bring about a healthy function of this organ, the liver, when diseased? Indications point clearly to such remedies as act upon the glandular system, of which we believe mercury and its preparations stand triumphantly at the head.

May we not justly infer that the increasing occurrence of paralysis, affections of the brain, and the too frequent deaths from heart-disease, as well as nervous prostration, are attributable in a measure to the want of proper medication of the system, and that the old plan of treatment which might be called semi-heroic, or a medium between the heroic and do-nothing, is preferable to the present mode of treating disease?

To the large class of persons who say that because the administration of medicine is empirical, and be-

cause all the knowledge we have of its action is experimental, therefore it should have no place in science, we would answer, that the same argument would apply to our daily food, and to everything else that goes to sustain organic life.

We know that ipecacuanha will vomit, and jalap will purge, but of their *modus operandi* we know nothing; and we know that food will nourish the body and sustain life, but of the why and the how we are as equally ignorant. When requested to give up an old and tried remedy, we have a right to demand another in its place, which, if not better, will be equally good. We are often told that podophyllin may be substituted for calomel, and that its action upon the glandular system, especially the liver, is equally potent. Let us look at the action of the two drugs. Podophyllin, by its irritating properties, increases peristaltic action, hastening the bile through the intestine, thereby preventing its absorption, and producing bilious stools. Calomel, on the other hand, when given in small quantities, and even when placed on the tongue (the Edinburgh experiments to the contrary notwithstanding), acts directly upon the liver, causing an increased secretion of bile, which of itself increases peristaltic action, and produces free bilious stools. Now while we get the same results in the stools, the causes are entirely different. The peculiar therapeutic properties of mercury and its preparations are such, that, at the present day, we know of no other drug to take its place.

Dr. Edward Newhall, of Lynn, a physician of fine ability and large experience, writes me that, twenty

years ago, he had a patient suffering from neuralgia, which resisted all his efforts to overcome it. After using all the different medicines recommended for the relief of neuralgia, and finding himself baffled in his efforts at every step, he called in council some of the best talent in Boston, among them the elder Jeffries; their suggestions failing to give relief, he, then thinking that the liver might have something to do with the disease, resolved to give calomel in small and often repeated doses. This was continued until he obtained a purgative effect, when the neuralgia completely and permanently disappeared. Acting upon the suggestion received from the above case, he has since continued to use calomel in most neuralgic affections, and has seldom been disappointed.

Arsenic, a remedy so often used in malarious and cutaneous diseases, and so effective in removing the moth-spots which we frequently see following pregnancy and chronic uterine disease, produces these results by its action first upon the liver. These moth-spots, by the way, I was told by a prominent gynæcologist when I first came to Boston, were pathognomonic of uterine disease.

Neumann, in his late work on skin diseases, in referring to these moth-spots, says: "They have been improperly called '*chloasma hepaticum*,' when the true name should be '*chloasma uterinum*,'" and that they result from pregnancy, and other disturbances of the uterine organs. He also admits that they are often found on persons who have been exposed for a long time to malarious influences, males as well as females. Now, if he excludes the part which the

liver performs in this, how can his two statements be reconciled?

I think any practitioner may consult with profit a very valuable paper read last autumn by Dr. L. P. Yandell, of Louisville, Ky., at a meeting of the American Dermatological Society. I quote from the *American Practitioner* for May: "Dr. Yandell further holds that what is true of the ætiology of skin diseases is equally true of those of the other tissues; that what is true of dermatology is true of gynecology, ophthalmology, otology," etc. Now as the blood pigment and the bile pigment are both created in the liver *de novo*, it matters but little whether the moth-spots are caused by blood or bile pigment. I believe we must look either directly or indirectly to the liver for a solution of these disputed points.

Another remedy whose therapeutic action is potent upon the liver, is *quinine*, in counteracting malaria, and all diseases dependent upon functional derangement of the liver, such as neuralgia and the many forms of derangement of the nervous system.

I believe that much harm has been done by doctrines widely taught in some parts of the country, one of which is the self-limitation of disease, which, when fully accepted, lead the physician to feel that he has no power to cut short or limit disease. By way of illustration: where disease commences in a case of ovaritis, and extends to the peritoneum, and is limited only when it has no more peritoneum to affect, and the death of the patient ensues. It is a fact well known by every physician of experience, that disease, instead of being self-limited, may, by a

judicious course of treatment, be itself limited, as in the above case, to the ovary or a small part of the peritoneum, a quarter, a half, or two thirds, and the patient's life saved, instead of letting the inflammation go uncontrolled, and result fatally.

Again, it is as if a person standing upon the dock, seeing one struggling in the water and crying for help, should call his attention to his own physical system, saying : "Look at the symmetry of my person ; my muscles have been most perfectly developed in a first-class gymnasium. I have for several years practiced lifting, until I have become exceedingly strong. Struggle on. In my experience, as many drowning men have been saved by their own exertions as by assistance." "But are you not going to help me?" cries the sufferer. "Why, most certainly. I am going to give you a little beef tea to keep up your strength, and a hypodermic injection of morphine to prevent too great a shock to your nervous system. I shall place a thermometer in your axilla, to see what effect the cold water has upon the temperature of your body." Now the most practical and humane way would be to pull him out ; if you could not seize him by the collar, grasp him by the hair of the head and save him, notwithstanding the bystanders might raise the cry of cruelty and inhumanity for saving him by so harsh a method.

If a physician should assert, "Because I cannot control disease, I will do nothing to save life," he would be like the skillful mariner who would say, "Because I cannot control the storm, nor stay the wind, I will let my vessel, with its costly freight and precious lives,

go to destruction." He will not act thus, but will conduct his vessel through the narrow and rocky channel, to the port of safety. Now, I ask, has not he done as much for his vessel, its costly freight and precious lives, as though he had controlled the storm and stayed the wind?

The doctrine of self-limitation of disease, in a physiological sense, is a misnomer. It is not strictly true even in regard to zymotic or contagious diseases, as complications may arise which will extend them beyond their ordinary limitation, or death may ensue, putting an end to both patient and disease. Hence it is clearly the duty of the physician to limit the disease, to prevent complications, and to save life.

We hear much said about treating disease on the expectant or do-nothing plan. Says a certain writer, "I have proved, to my own satisfaction at least, that some of the gravest or most painful diseases, left without drugs, but otherwise properly cared for, will go on quite as favorably, and with as many recoveries, as when submitted to medication." To our own mind, this is a mode of therapeutics difficult to define, for in very many cases it is impossible for the physician to know what to expect, and, to secure a favorable result, active medication is demanded, and all the means employed which knowledge and experience can suggest; for in many cases, if left to the above plan, the patient may die before he is expected to.

When the sick were brought to our Saviour, He did not talk to them about the limitation of disease, and of treating them on the expectant plan, but "healed all their diseases and went about doing good."

Are we not departing from the highest standard of medical usefulness when we adopt a system of therapeutics founded only upon physiological experiments made upon lower animals, and upon microscopic and chemical analysis of the fluids and solids of our own system after death, to the exclusion of clinical observation, and the experience of our best and closest observers of disease? By possessing a thorough knowledge of the system in health, and by being able to detect the departure of each function from its normal condition when laboring under disease, and by bringing to bear all the clinical experience of the masters in the profession, we may be able to arrive at a comparatively true pathology, and adopt with a degree of precision a rational mode of therapeutics.

Our aim, as physicians, should be to utilize our knowledge, for all *valuable* observations lead to some practical result. Knowledge, without common sense to apply it, is useless, for an educated fool is the greatest fool in the world.

While we render all honor and praise to such men as Austin Flint, Jr., Murchison, Bernard, Kölliker, Pavy, and others, yet we must receive their experiments with some grains of allowance, in view of the difficulties they encounter in making them, both on living and dead subjects.

When we consider the universal law of compensation, that when one function is interfered with, or prevented from fulfilling its office, others promptly come to its aid, thereby interfering with every experiment; and when we reflect upon the post-mortem changes which follow that mysterious phenomenon

which we call death, again it becomes difficult to adopt a course of treatment founded upon a pathology derived from these sources alone.

We can pursue our investigations only to a certain point; beyond this it is dangerous to go, for we leave the practical and useful, and enter upon the theoretical and destructive. For example: if we take a piece of charcoal the value of a penny, and a diamond worth its hundreds of pounds, and submit them to the same destructive analysis, we reduce them both to their primary element, carbonic gas, and the valuable diamond is worth no more than the charcoal, for both are utterly useless.

Our predecessors in the profession have cast up a highway of experience, and he who refuses to walk therein will suffer loss.

I would simply suggest that the coming student will reoccupy fields of investigation that have been for centuries abandoned, and find them to be rich and fertile, yielding a valuable harvest.<sup>1</sup> Also that he will find some avenue other than the nerves and circulation of blood, by which the active principle of medicines as well as of poisons are conveyed through the system to the vital centres; and that many phenomena which have been called *shock*, in which their action, or death, have been almost instantaneous, can hardly be explained by the above term.

As legitimate conclusions from the above I may now fairly assert:—

1. That uterine hyperæmias, fluxions, congestions, and inflammations are too often found coincident with

<sup>1</sup> See Appendix F.

hepatic disorder to permit us to believe that there is no direct connection (of effect and cause) between them.

2. That uterine hyperæmias, fluxions, congestions, and inflammations, being usually in point of time secondary in appearance to symptoms that are clearly hepatic, they cannot be the cause of them.

3. That uterine hyperæmias, congestions, fluxions, and inflammations, when coincident with derangement of the hepatic functions, must therefore be occasioned, or at least intensified, by them.

4. That consequently it would be alike unscientific and unreasonable to attempt to cure uterine hyperæmias, fluxions, congestions, and inflammations by means directed to the pelvis alone, without also, and in many cases mainly, treating the organ through whose functional fault the diseases referred to have been occasioned or aggravated. In other words, to summarize more clearly, —

5. That the successful treatment of uterine hyperæmias, fluxions, congestions, and inflammations must often depend as much upon measures that are termed constitutional as upon those that are strictly local, and that sometimes without them it is impossible.<sup>1</sup>

<sup>1</sup> See Appendix G.

## APPENDIX.

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### A.

FRED. THEOD. FRENICHS, Professor of Clinical Medicine in the University of Berlin. *A Clinical Treatise on Diseases of the Liver.* Translated by Charles Murchison, Physician to the London Fever Hospital. 1879. Vol. i., pp. 4 and 9.

“The liver has consequently again ceased to be regarded as merely an organ for secreting bile. The views of Galen, which Bartholin believed he had overthrown forever, although modified and circumscribed, have risen into new life and significance. There can now be no doubt that in this gland processes go on which exercise an important influence over the principal vegetative functions—sanguification and the metamorphosis of tissues; what remains to be done is to ascertain at the sick bedside, and by means of experiment, the extent of these processes, and to fix with precision their influence upon health and disease.

“As might have been expected, this change of opinions concerning the physiological relations of the liver could not fail to react upon the views entertained as to its pathology. In these views similar changes are met with; only they are less remarkable than in the case of the physiological opinions, because clinical observations must always be directed to the secretion of bile as the chief function of the liver.”

“After the discovery of the elementary composition of the bile, the liver came to be regarded as the organ which purified the blood of its carbonaceous products, and as being in this way vicarious with the lungs; scarcely a trace remained of the views entertained by the old physicians, that the organ exercised a manifold influence over the formation of the blood. The study of

liver diseases acquired in this way the simple anatomical character which we recognize at the present day; and owing to this study being cultivated more on the dissecting-table than at the sick bedside, the investigation of the more obscure functional disturbances of the liver itself, and of its participation in other acute and chronic diseases, was gradually discarded. That which had been stated and written by the ancients upon the subject was looked upon as the fictions of an age long past.

“Modern physiology, however, has effected great changes in this department, and has opened up many new points of view from which to study the question.”

## B.

SIR JAMES Y. SIMPSON, Professor of Midwifery in the University of Edinburgh. *Obstetric Memoirs and Contributions*. Edinburgh Edition, 1855, vol. i., p. 19; American Edition, vol. i., p. 33. *Clinical Lectures on the Diseases of Women*. New York, 1872, p. 19.

“In uterine disease we find another abdominal organ not unfrequently sympathetically affected — I mean the *liver*. In very many women the biliary secretion becomes disordered at the return of each menstruation; in some a state of constipation, in others a state of diarrhoea, recurring during each menstrual period. The biliary and catamenial secretions seem almost vicarious of each other; and, as in other cases in which such physiological relations exist, the two functions are not unfrequently simultaneously deranged in their pathological actions also, both being occasionally increased or decreased together; or, what oftener happens, one being increased in extent and activity when the other is diminished. In some cases the cure of a uterine disease seems also to rectify the coexistent, and perhaps resultant, hepatic derangement; while, no doubt, also, in other cases we find ourselves altogether unable to amend and arrest uterine diseases and discharges, till we have, in the first instance, used appropriate means to modify and correct the attendant hepatic disorder.”

## C.

HENRY M. FIELD, Professor of Therapeutics in Dartmouth Medical College. *The Necessity of Associating Constitutional Medication with Topical Applications in the Treatment of Uterine Disease.* Journal of the Gynecological Society of Boston, vol. i., July, 1869, p. 30.

“Let us consider for a moment the state of a patient when first she consults us, in whom any one of the more common forms of uterine disease has existed for a considerable time. And, first, in a representative case, *we do not find organic complications.* There is not actual structural lesion of any other organ than of that whose diseased condition has led the patient to come to us for help. And yet there is no class of patients to whom the term *invalid*, in its full force, may be more properly applied. Probably not one of the more important functions is performed in a perfectly healthy manner; and the operation of certain of them, upon the healthful and regular performance of which the comfort of the patient directly depends, is very seriously impaired. ‘The whole head is sick and the whole heart faint.’ With only passing allusion to the long-continued constipation and the multiform manifestations of indigestion which these subjects present, there is the consequent change in the quality of the blood, of as real and material a nature as is a structural lesion itself; and there is the no less imminent and phenomenal depravation, in energy and health, of the entire nervous system; and we have, moreover, what is not always thought of, and the exact effects of tendencies of which are not fully understood,—the dispiriting, demoralizing, and devitalizing influences of the long-continued suffering of persistent and unalleviated pain.

“In the case supposed, and which I desire should be a typical case, as, for instance, a subject presenting cervicitis, endometritis, induration of tissue, with general engorgement of the womb, complicated perhaps with some displacement,—undoubtedly the uterine disease is the original and procuring cause of all the patient’s sufferings,—the fountain and the origin of all the evils which the case presents; pains, disabilities, and irregularities local and general; and yet to take sole cognizance of the uterine disease, in diagnosis and treatment, on the maxim so familiar and so often acted upon in

medicine, to wit: 'If the cause be removed, the effect will follow,' — without special reference to the more remote and functional complications of the case, would be as unphilosophical as it would be narrow and unfortunate in practice. For, firstly and theoretically, the uterine lesion, if it have existed for some time before it is brought to our notice, although it was the original cause, is not, at present, the sole and efficient cause of the patient's condition, but also the depraved state of the blood and of the nervous system, and the many forms of functional derangement which complicate the case; and, moreover, secondly and practically, we cannot hope successfully to compete with even a local inflammation, or to restore a single diseased organ to a normal and healthful condition, so long as the blood is seriously impaired in its quality, and the more important functions of animal life are depraved or disordered."

## D.

HENRY G. WRIGHT, Physician to the Samaritan Hospital (London) for the Diseases of Women. *Uterine Disorders; their Constitutional Influence and Treatment.* 1867, pp. 59 and 211.

"I sought some means of assisting or stimulating the action of the portal system, where its obstruction forms the original source of the trouble. The medicinal agent I selected and have largely employed is the hydrochlorate of ammonia. It is administered with the intention of immediate absorption into the portal venules which ramify beneath the surface of the digestive tract. It was first suggested by the results of certain well-known experiments on blood-stasis of the effects produced by injections and administration of different salts, and by a consideration of the recorded influence and mode of action of the drug, which has been for many years commonly employed in Germany as a deobstruent.

"The use of hydrochlorate of ammonia for the purpose indicated implies a recognition of its value generally as an important agent for the relief of hepatic portal congestion. This I believe to be very great, but only one result of such congestion has to be here considered.

"The virgin womb is simply a rudimentary organ of which the development is stayed; but with a special vascular arrangement,

adapted for the due supply, on any exigency, of material to carry out to the full its structural purpose. This condition of latent power in the unimpregnated uterus is in accordance with a law of the economy already frequently referred to: the provision of power being constantly in excess of apparent physiological requirements. Thus the heart, beating seventy times in the minute, has a constant power equal, on emergency, to double that action; the muscles of the leg, when simply lifting the weight of the foot, may, if a slip occur, be suddenly called on to resist a strain two hundred times greater than that just previously thrown upon them. In these instances, and in many others, each tissue is constantly in perfect repair; and we judge its power, not so much by what it does, as by what it is always capable of doing. If the life of the virgin uterus were similarly ordered, with a wall-structure sufficient to lodge a full-grown fœtus, the physical inconvenience which would result is obvious. Hence the development of the organ is arrested whilst yet in a rudimentary condition; but it is surrounded and penetrated by vessels peculiarly and exceptionally arranged to facilitate rapid progress of its growth, when occasion arises. These are the curled arteries (*'capreolorum vitium instar eleganter intortæ,'* as Swammerdam describes and figures them), and the venous plexus already mentioned. I repeat that the changes that take place in the structure of the uterus during pregnancy represent simply a continuance of its growth until the organ attains that perfect development for which provision was distinctly made throughout the time of virgin life. This view is assuredly more in accordance with that exquisite orderly arrangement which governs all the processes of life, than the bewildering suggestions which accredited the uterus as a *'miraculum naturæ,'* a microcosm — an animal within an animal; an organ undergoing extreme and marvelous changes, and such as to prohibit its consideration as merely an illustration of ordinary processes of nutritive development."

## E.

MONTROSE A. Pallen, Professor of Gynaecology in the University of New York, and Surgeon to Charity Hospital.

"NEW YORK, No. 9 West 29th Street, June 19, 1879.

"MY DEAR DR. WARNER, — I have received your very flattering note of June 10th, in which you request me to furnish you with a copy of my remarks on the subject of uterine displacements (made in the Obstetrical Section of the American Medical Association held in Atlanta last month) in reply to those of Dr. Albert Smith, of Philadelphia. I cannot possibly send you the sentences as they were spoken, nor can I recall the whole thread of a discussion, whereof my utterances were totally extemporaneous, although I think I can give you the substance. Dr. Smith, you will remember, claimed that uterine displacements were mainly induced by stretching of inflamed ligaments, and that the Hodge pessary or that modified by himself, in a great measure overcame these difficulties. The doctor also denied that the vagina was a factor in the support of the uterus, and he did not consider the explanation previously given by me (in presenting my retroflexion pessary) as the proper rationale in the rectification of the dislocated uterus. I entertain quite different views. The theories of the late Professor Hodge still dominate not only over my distinguished friend, Dr. Albert Smith, but likewise control the ideas of a vast majority of the profession at large, with regard to the etiology and philosophy of uterine displacements. The dissections of Jarjavay, Priestley, Traer, Rouget, and Kobelt, however, have shed so much light upon the anatomy and physiology of the female pelvis, that the student of gynaecology who takes advantage of their demonstrations must be forced to different conclusions. In addition to these facts, the revelations of the dead-house, as made by Rokitansky, Klob, and Virchow, open up a mine of information, which proves that the idea of a stretched ligament is as mythical as is the existence of any true ligamentous tissue whatever. It is ungenerous to presume that Nature's handiwork shows such little cleverness as to fancy an organ of such multiple changes as is the uterus, constructed to meet so many and such varied processes, to be swung

in the centre of the pelvis on the same principle as a bucket in a well, with certain lifting ropes, and a windlass to govern them. For years the prevailing idea of the normal fixation of the uterus has been based upon the supposition that the round, broad, and lumbo-sacral ligaments were the controlling factors. Some few, however, have attributed to the vagina the chief duty of sustaining and retaining the superincumbent uterus.

"From the days of Morgagni down to the period of Hodge, the partisans of the ligament theory have denied a proper sustentative power to such an inverted dilatable cone as is the vagina, resembling 'the cup and ball, without the solidity and natural power of resistance of the cup.' *Per contra*, John Bell proclaimed that the duplicature of the so-called broad ligaments, a thin, serous membrane, is totally unfitted to sustain a uterus of the weight it frequently obtains from pregnancies or from disease. Matthews Duncan, in 1854, announced himself as a believer in Bell's theory, 'that the firmness and structure of the vagina support the womb,' and that the 'so-called ligaments (broad) have neither the structure nor function of parts ordinarily so named.' How much of truth there is in Matthews Duncan's statements, and how defective is the idea of Hodge, I propose to illustrate by considering the mechanico-anatomical fixations of the uterus and the changes therein wrought by the varying physiological or pathological blood distributions.

"In 1855, Rouget, Traer, and Hélicé fully demonstrated the erectility as well as the contractility of the vagino-utero-ovarian systems. Before Rouget's time, Cazeaux indorsed (1850) Deville's description of the muscular envelope of the uterus and its annexes, of which the pretended peritoneal ligaments are nothing more than mere appendices, which disappear during gestation, as their respective laminae cover the anterior and posterior surfaces of the developed womb. Rouget, in a later communication<sup>1</sup> on the erectile organs of the female, and the muscular tubo-ovarian apparatus, states that the study of the comparative anatomy of the genitalia of all vertebrates indicates that the broad ligaments are but lateral

<sup>1</sup> Recherches sur les organes érectiles de la femme, et sur l'appareil musculaire tubo-ovarien. (*Journal de Physiologie*, Brown-Séquard, Paris, 1859.)

expansions of the uterine structure, as the subjacent inter-alar muscular fasciculi are so intimately blended with the uterine muscular envelope, that they are continuations of the external layer of the muscular envelope. He likewise traces these fibres into the round and lumbo-sacral ligaments. They ramify in the *mesovarium* (that inter-alar connective tissue expansion which serves likewise to convey the blood-vessels to and from the uterus and ovary), and spread out like the radiants of a fan, which greatly facilitates the approximation of the ovary and the extremity of the tube pending the erection of the parts during ovulation, menstruation, or erotic excitement, — a point to be considered more fully when the ætiology and pathology of displacements are shown to depend upon causes totally at variance with the presumed special protective lifting power of these structures. The frozen sections of the virginal female pelvis, as figured by Breisky, Acby, Winkel, and others, show the normal axis of the uterus to be on a plane higher than that of the bladder, whereby the anterior folds of the broad ligaments are stretched *below*, and the posterior somewhat *above*, the organ. If these drawings are anatomically and regionally correct, the ‘axis of suspension’ between the broad ligaments must hereafter be explained by some other process than the hitherto supposed lateral expansions. We are perfectly satisfied that the uterus frequently assumes the upright position between the anterior and posterior expansions of the broad ligaments, and when it does so, *it carries them up instead of their suspending it in the central pelvic axis*, and such lifting process is in consequence of uterine and ovarian erectility and mobility. In fact, the female intra-pelvic organs are subjected to the same anatomical and physiological vascular distributions as are the extra-pelvic organs of the male. The corpora cavernosa and corpus spongiosum of the male organ are principally made up of venous trabeculae, and the uterus and peri-uterine spaces are likewise richly endowed with cavernous sinuses and retiform plexuses. The arterial distribution, instead of being dichotomous as in the general circulation, is multiple and curled, possessing a wonderful capacity of rapid unloading, of filling the venous trabeculae almost with electrical rapidity. Like the male organs, the female generative tract is capable of immense venous engorgement — rapidly under emotional causes, slowly pending the menstrual flux — in consequence of the sudden emptying of the

arterial diverticula and inosculations. The anastomoses of the venous plexuses can be traced from the vestibule, around the urethra and clitoris, on either side of the vagina and uterus, in the broad ligaments and under the ovaries, and thence from the uterine body directly into the hypogastrics and left renal into the portal circulation, and through the hemorrhoidal and mesenteric to the same apparatus from the cervix. When the rectum, bladder, and superficial pelvic fascia are removed in the cadaver, the *uterus and ovaries sink to the bottom of the pelvic excavation, or to either side, according to the inclination of the body, but if we inject the hypogastric, sub ovarian, and left renal veins, we see the methods of erection undergone during ovulation, menstruation, and coition.* In other words, whilst we witness the change in position, principally elevation and erection, under the physiological and normal impulse, we can likewise understand how a plus quantity of blood, from pathological causes, may induce depression and sinking anteriorly, posteriorly, or directly. If the cadaver is injected under water, we see the uterus rise up in the pelvis, even above the brim, the ovaries crowded towards the fimbriated extremities of the oviducts, and the normal ante-curvature or ante-flexion of the body of the uterus diminish in consequence of the bulging forward of the anterior wall, which becomes highly convex. There is a corresponding increase in weight, not only of the uterus proper, but of the entire peri-uterine spaces. The change of position of the uterus more or less impresses the oviducts, and very decidedly the ovaries. Now, if this plus quantity of blood, variously described as fluxion, engorgement, hyperamia-congestion, ensue to such a degree as to develop changes in the perivascular spaces, we can readily understand how œdema, ecchymotic effusions, obstruction of venous flow — choking of arterial distribution, hypertrophy, — connective tissue proliferation, ischæmia, and subsequent induration — may each and every one ensue to produce structural tissue change, frequently found pervading the anterior or posterior wall of the uterus in versions, or prominently affecting but one portion, at the angle of bending, in all forms of flexure. Once the erectility and contractility of the organ are interfered with, we can anticipate those structural changes, vigorously described as metritis by some, areolar hyperplasia by others; and the first processes undergone to accomplish this result are embolism of the vessels

of supply, or thrombosis of the efferent veins or capillaries. In fact, we may safely assume, *that in all flexures, unless produced by direct mechanical causes, the genesis of the bending is owing to an ischæmia of a small area (supplied by one or more twigs of the curled and multiple arteries) produced by an embolus, thereby depriving a certain space of erectility. The erectility being lost, certain fibres become paralyzed, as it were, and as a consequence they atrophy and undergo fatty degeneration.*

“For these reasons concerning the ætiology of flexure, we rarely see a version in which there is not a certain amount of flexion. The vascular distributions of the female pelvis, masses of curled-multiple arteries and reticulated venous trabeculae, indicate the *modus operandi* of erection and mobility, and upon these varying conditions largely depend the normality or abnormality of the position of the uterus. As is the resistant power of these blood-vessels so is the texture of the uterus, and the health power must not be taken as an index for what takes place in disease. A flabby woman — a woman with loose connective tissue whereon the blood-vessels ramify — is much more liable than is the elastic, well-braced woman, to portal and intra-pelvic venous obstruction. In such a case, venous congestion, occurring anywhere from the bulb of the vestibule to the portal inlets, may encroach upon the intra-pelvic circle and beget uterine trouble. A condition analogous to the congestion of menstruation or the hyperæmia of pregnancy is begotten, but minus the propulsive force of either of these conditions to disgorgement, as Kölliker has shown that in pregnancy the middle coat of these vessels (normally consisting of simple cellular structure) develops muscular fibres. It is a simple matter to trace the intercommunications of these venous canals from the vestibule, around the urethra, clitoris, on the lateral walls of the vagina and uterus, under the oviducts and ovaries, to the hypogastric and left renal veins, and thence to the portal circulation. From the lower segment of the uterus and the cervix to the hemorrhoidals, the mesenteric (the hypogastric also), into the portal veins likewise. This explains the long observed fact of portal and uterine engorgement and obstruction mutually communicable. Hippocrates described it centuries ago. Sir Charles Clark, Butler Lane, and Sir James Y. Simpson have dwelt upon it. Dr. Every Kennedy states that ‘an engorged state of the uterus is very liable to alternate

with, translate to, or coexist with, congestion of the liver and spleen.'

"The mobility of the uterus is unusually great, as it is fixed to but one part of the pelvis, to the bladder, where likewise the vagina is implanted; everywhere else the uterus is held in position by its agglutination to and conglomeration with a connective tissue meandering all around the blood-vessels, dipping down into the peri-vascular spaces, which thickens and duplicates upon itself to become the so-called fasciæ. The largest and strongest dissepiments pass from the bladder to the rectum over the womb to intercross with those of the anterior and posterior vaginal vaults, and if any structure at all is directly devised for the support of the uterus, in its maintenance in the health-plane, it is the vagina. The most convincing proof of the sustentative power of the vagina consists in the almost invariable dislocation downwards, most frequently in retroversion, whenever laceration of the perineum ensues, whenever the inferior and posterior segment of vaginal ellipse is broken down. The vagina, however, is but the medium of actual support, as it depends for its positional integrity principally upon the levatores ani, the transverse perinei and the pubo-ischio-coccygeal muscles, the circumferential connections to the deep and superficial fasciæ attached to the ischiatic notches and tuberosities are in reality the props, the cross-pieces holding the main rafters in position. The folds of the broad ligaments are likewise movable upon themselves in consequence of the inter- and intra-alar connective tissue, and an immense amount of mobility and displacement, perfectly compatible with health, is thereby allowed the uterus, as is witnessed in distension of the bladder and rectum. If the uterus depended entirely, as has been so frequently urged, upon the ligaments for retention in the normal fixation, the overloaded bladder and rectum, or diaphragmatic descent, would always strain the round anterior, or the lumbo-sacral posterior, or the lateral broad ligaments to such a degree as would always hazard their integrity. The true function of the round ligaments is to draw the fundus of the uterus downwards and forwards pending erectility and mobility (as do their analogues in the male, the cremasters, which lift and fix the testes under the rings), and under no circumstances do they ever exercise any lifting or sustentative power. The broad ligaments are nothing more or less than peritoneal dissepiments, symmetri-

cally duplicated, and designed principally to serve as beds of support for the vascular system peculiar to the erectile nature of the uterus and the ovaries. The lumbo-sacral ligaments, notwithstanding their insertion into the posterior surface of the inferior segment of the uterus and the cervix, serve more to retain the rectum *in situ* than to especially lift up the uterus. All of them are individual parts of one system, pieces of the machinery of sustentation, but not the chief factors in this process.

"The uterus is swung to the pelvis just as the cocoon is embedded in its fibres, none of which singly or alone possess any strength or power, but collectively and unitedly control vastly more force than is supposed. In the female pelvis this cocoon-like distribution of areolar or connective tissue fibres hold up the uterus; being distensible and elastic, it permits great latitude of motion, and this motion is peculiarly dependent upon the greater or less quantity of blood rolling over and through it in the arteries and veins. The more energetic the erectility, the less liability to venous congestion; the lesser power of rapid arterial unloading, the greater the possibility to venous congestion. These are the main facts in the pathology of displacement, because the dynamic and catalytic properties of the connective tissue are ultimately broken down by overstretching, either from physiological erectility or pathological hyperemia, — like as india-rubber bands, too long around a package of letters, finally lose all retentive contractility. This condition in the connective tissue of the female pelvis may be brought about by its fracture, when direct force is used — by stretching when the flooring gives way, as in lacerated perineum, — or by obstruction and stretching, as when a tumor or sub-involution of the uterus increase its weight and maintain venous engorgement as well as hyperplasia of the structural elements.

"These great principles require special elucidation, and an explanation of the philosophy and rationale of treatment. Why certain forms of pessaries are good, and others bad; why postural (knee-chest) exercise of the patient is always good; why a pessary is never a *curative*, but a *retentive* like a splint, as it is; why *exclusively* local treatment should be discarded, but should be combined with a great deal of hygienic, dietetic, and physical care, require more space than you have to spare, if I should even attempt to outline them, as I did in the Obstetrical Section of the Association

at Atlanta. I shall elaborate this question on some future occasion, my dear Dr. Warner, and I hope to be able to convince others, as you did me the honor to say you were, that the philosophy and mechanics of uterine displacements have been too little studied and but meagrely understood. In the mean time, I hope this imperfect sketch will be of sufficient interest to arouse a new impetus in the consideration of this all important subject.

“Very sincerely yours, MONTROSE A. PALLER.”

F.

ROBERT BARNES, Obstetric Physician to St. George's Hospital, London. *On the Relations of Pregnancy to General Pathology.* Transactions of American Gynecological Society, 1877, vol. i., p. 146.

“That the liver and kidney have more work to do in pregnancy is undoubted. The enlargement of the liver has been noticed by several observers. It is referred to by Trousseau. If we look upon the liver as executing a twofold function: 1st, that of furnishing the digestive elements of bile; 2d, that of a blood purifying or excrementitious organ, and, adopting the propositions of Verger, regard the hepatic artery as supplying the materials for the first function, and the portal vein as supplying the material for the second function, we may form some idea of the increase of duty thrown upon the liver during pregnancy. Under ordinary circumstances, Verger shows it to be probable that in five sixths of its bulk, the liver is an organ of hemostasis and respiration. This proportion, it may fairly be assumed, is greatly augmented during pregnancy. If we call to mind the astonishing work going on in the pelvis, the uterus growing at a marvelous rate, the embryo and placenta in vigorous and rapid development and active function; if we remember the consequent vast increase of blood-supply to the lower abdomen; and the increased difficulty opposed to the return of this blood by the veins,—then shall we be convinced that the portal system is charged far beyond ordinary measure with blood loaded with carbon and other excrementitious matters. Under this difficulty the healthy balance is easily overturned, the liver strikes work, or performs it imperfectly. Jaundice, with or without or-

ganic change of the organ, appears. The condition offers a parallel with that in which the kidney is overstrained, and its excreta accumulate in the blood."

## G.

HORATIO R. STORER, President of the Gynæcological Society of Boston, Consulting Surgeon to the Carney Hospital (Sisters of Charity); formerly Surgeon to St. Elizabeth's Hospital for Women, and Physician to the Boston Lying-in Hospital. Transactions of the American Medical Association, 1878, pp. 370 and 422.

"For a number of years his experience had confirmed the conclusions" presented by Dr. Warner. These "views, based upon that gentleman's long experience and extremely accurate observation, I believe to be correct."









